

Notice of Allowability

Application No.

09/602,840

Examiner

Stuart F. Baum

Applicant(s)

KIRIHARA ET AL.

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers filed on 10/29/2004.
2. ☒ The allowed claim(s) is/are 78-79, 84, 86, 88-89, 96, 98--107, 110-111 (renumbered 2-19, 1).
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 1104.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Robert Hanson on 12/1/2004.

2. IN THE SPECIFICATION:

Page 1, Lines 5-7 have been replaced with:

--This application is a divisional of U.S. Application Serial Number 08/763,704 filed 12/9/1996, now U.S. Patent Number 6,326,527 which is a continuation-in-part of U.S. Application Serial Number 08/112,245 filed 8/25/1993 now abandoned, the disclosures of which are incorporated by reference.--

Drawings

3. Figures 1 and 2 are objected to because some of the information is illegible.
Figures 7 and 9 are objected to because the image is too dark to discern any information.
Formal replacements are requested.

4. IN THE CLAIMS:

Claims 73, 90-91, 95, and 108-109 have been canceled.

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--78. (Currently amended) A seed [derived] from the plant of claim [73] 111, wherein the seed comprises said nucleic acid molecule [preselected DNA sequence].

79. (Currently amended) A progeny plant [derived] produced from the seed of claim 78, wherein the plant comprises said [preselected DNA sequence] nucleic acid molecule and wherein transcription of said nucleic acid molecule inhibits expression of said seed storage protein and increases the starch extractability of the progeny plant's seed relative to the amount of said seed storage protein and starch extractability of seeds not comprising said nucleic acid molecule.--

--84. (Currently amended) The transgenic plant of claim [73] 111, wherein the promoter comprises the 10 kD zein promoter.--

--86. (Currently amended) The transgenic plant of claim [73] 111, wherein the promoter comprises the 27 kD zein promoter.--

--88. (Currently amended) The transgenic plant of claim [73] 111, wherein the [preselected DNA sequence, which encodes an RNA molecule substantially complementary to all or a portion of an mRNA encoding a seed storage protein, encodes an RNA molecule

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substantially complementary to all or a portion of an] nucleic acid molecule is in antisense orientation and when transcribed produces a mRNA molecule complementary to a mRNA encoding 19 kD α -zein protein.

89. (Currently amended) The transgenic plant of claim [73] 111, wherein the [preselected DNA sequence, which encodes an RNA molecule substantially complementary to all or a portion of an mRNA encoding a seed storage protein, encodes an RNA molecule substantially complementary to all or a portion of an] nucleic acid molecule is in antisense orientation and when transcribed produces a mRNA molecule complementary to a mRNA encoding 22 kD α -zein protein.--

--96. (Currently amended) The transgenic plant of claim 78 or 79, further comprising [stably transforming the cells with] at least one selectable marker gene.--

--98. (Currently amended) A method of obtaining starch from a *Zea mays* seed, comprising:
(a) growing a transgenic *Zea mays* plant, comprising a nucleic acid molecule exhibiting at least 70% sequence identity to SEQ ID NO:1 or 90% sequence identity to SEQ ID NO:2, wherein SEQ ID NO:1 encodes a 19 kD α -zein plant seed storage protein and SEQ ID NO:2 encodes a 22 kD α -zein plant seed storage protein and wherein said nucleic acid molecule is operably linked to a promoter in sense or antisense orientation wherein transcription of said nucleic acid molecule inhibits expression of said seed storage protein and increases the starch extractability of the seed relative to the amount of said seed storage protein and starch extractability of seeds not

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comprising said nucleic acid molecule [the genome of which is augmented with a preselected DNA sequence encoding an RNA molecule which is substantially identical, or complementary, to an mRNA encoding a 19 kD or a 22 kD α -zein seed storage protein, wherein the preselected DNA sequence is expressed in the cells of the Zea mays plant in an amount sufficient to decrease the amount of seed storage protein];

(b) obtaining seed from said plant; and

(c) extracting starch from the seed.

99. (Currently amended) The method of claim 98 wherein the [preselected DNA sequence] nucleic acid molecule is operably linked to a promoter functional in plant cells.--

--102. (Currently amended) The method of claim 98 wherein the [preselected DNA sequence encodes an RNA molecule which is substantially identical to all or a portion of the mRNA encoding a seed storage protein] nucleic acid molecule is in sense orientation.

103. (Currently amended) The method of claim 98 wherein the [preselected DNA sequence encodes an RNA molecule which is substantially complementary to all or a portion of the mRNA encoding a seed storage protein] nucleic acid molecule is in antisense orientation.

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104. (Currently amended) The method of claim 102 wherein the nucleic acid molecule exhibiting at least 70% sequence identity with SEQ ID NO:1 is operably linked to the promoter in sense orientation [preselected DNA sequence encodes an RNA molecule substantially identical to all or a portion of mRNA encoding a 19 kD α -zein protein].

105. (Currently amended) The method of claim 102 wherein the nucleic acid molecule exhibiting at least 90% sequence identity with SEQ ID NO:2 is operably linked to the promoter in sense orientation [preselected DNA sequence encodes an RNA molecule substantially identical to all or a portion of an mRNA encoding a 22kD α -zein protein].

106. (Currently amended) The method of claim 103 wherein the nucleic acid molecule exhibiting at least 70% sequence identity with SEQ ID NO:1 is operably linked to the promoter in antisense orientation [preselected DNA sequence encodes an RNA molecule substantially complementary to all or a portion of an mRNA encoding a 19 kD α -zein protein].

107. (Currently amended) The method of claim 103 wherein the nucleic acid molecule exhibiting at least 90% sequence identity with SEQ ID NO:2 is operably linked to the promoter in antisense orientation [preselected DNA sequence encodes an RNA molecule substantially complementary to all or a portion of an mRNA encoding a 22 kD α -zein protein].--

--110. (Currently amended) The method of claim 98 wherein the genome of the transgenic *Zea mays* plant [is] further [augmented with] comprises at least one selectable marker gene.

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111. (New) A fertile transgenic *Zea mays* plant comprising seeds having an increased starch extractability comprising a nucleic acid molecule exhibiting at least 70% sequence identity to SEQ ID NO:1 or 90% sequence identity to SEQ ID NO:2, wherein SEQ ID NO:1 encodes a 19 kD α -zein plant seed storage protein and SEQ ID NO:2 encodes a 22 kD α -zein plant seed storage protein and wherein said nucleic acid molecule is operably linked to a promoter in sense or antisense orientation, wherein transcription of said nucleic acid molecule inhibits expression of said seed storage protein and increases the starch extractability of the seed relative to the amount of said seed storage protein and starch extractability of seeds not comprising said nucleic acid molecule.--

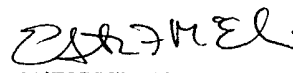
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart F. Baum whose telephone number is 571-272-0792. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on 571-272-0804. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Stuart F. Baum Ph.D.
Patent Examiner
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December 2, 2004


ELIZABETH MCELWAIN
PRIMARY EXAMINER